Rhodora

JOURNAL OF THE

NEW ENGLAND BOTANICAL CLUB.

Conducted and published for the Club, by

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Vol. 10. October, 1908. No. 118.

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Boston, Mass.
1052 Exchange Building.

Providence, R. I.
Preston and Rounds Co.

RHODORA.—A monthly journal of botany, devoted primarily to the flora of New England. Price $1.00 per year ($1.25 to all foreign countries including Canada); single copies 15 cents. Volume 1, $2.00, Vol. 2, $1.50. All remittances by check or draft, except on Boston or New York, must include ten cents additional for cost of collection. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be gladly received and published to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than one page of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to
B. L. ROBINSON, Clement Circle, Cambridge, Mass.

Subscriptions, advertisements, and business communications to
W. P. RICH, 300 Massachusetts Avenue, Boston, Mass.

Single copies may be had from
E. L. RAND, Corresponding Sec'y N. E. Botanical Club,
1052 Exchange Building, Boston, Mass.

Entered at Boston, Mass., Post office as Second Class Mail Matter

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SYNOPTICAL FLORA OF NORTH AMERICA, by A. GRAY and others. Vol. I. Fascicles 1 and 2. A critical treatment of forty-five families of polypetalæ (*Ranunculaceæ to Polygalaceæ*) 1895-1897. $5.20.—GRAY HERBARIUM of Harvard University, Cambridge, Mass.

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JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 10. October, 1908. No. 118.

THE THREE ADVENTIVE HEATHS OF NANTUCKET, MASSACHUSETTS.

Maria L. Owen.

On the island of Nantucket are three small heaths which attract a degree of attention quite disproportionate to their size. Botanists look at one and question "How came you here?" Flower lovers admiring all of them are content to say "The self-same power that brought me here brought you." Then the Athenians of our day who spend their time seeking new things wherever they journey, hearing of our plant that grows nowhere else on this continent from Greenland to Cape Horn, rush out to the commons to see it; they may be disappointed at its modest appearance, still they show that they too, in their way, care for the wonder, and for all these pilgrims the following story is written.

Erica cinerea, L., *Erica tetralix*, L. and *Calluna vulgaris*, Salisb. are the three heaths, all common and abundant in Northern Europe; the interest lies in the fact that they appear on the Western Continent. Their family is well represented here, but of the genera to which these few specimens belong, *Erica* is totally lacking, and of *Calluna*, although it appears in a few localities quickly counted, it is not certain that it is indigenous with us.

There are three heaths on the island, but it is *Erica cinerea*, the bell-heather, that is the Jean Paul of the trio,— "The Only-One". In August, 1868, a single plant of this species was detected in Nantucket by Mrs. Elizabeth E. Atwater of Chicago, and a notice of this in Wood's Manual of 1874 met my eye. I could hardly believe what I read, but after satisfying myself that there were in the Gray Herbarium specimens verifying Prof. Wood's statement, I took steps to

find the plant again. The island is my birthplace, and I have known its commons, its swamps and thickets, its sea beaches and its pond shores from childhood, but not living there in 1874 I wrote to Mrs. Matthew Starbuck and asked her to be on the lookout for this heather. She is a lady fond of our wild flowers and with facilities for collecting them, but the island has an area of some fifty square miles, and we had no clew to the locality where Mrs. Atwater made her happy find, so it is not strange that years passed before the plant was seen by Nantucket eyes.

I learned in 1879 that Mrs. T. E. Morris, of Saginaw, Michigan, saw it for the second time in 1871. She was Mr. Atwater's niece and was with her uncle and aunt when the plant was first found. In a letter to Mrs. Atwater she tells of visiting again the spot where they had seen it together, of finding "the same old roots" and of searching the vicinity in vain for more specimens. She says "roots"; that is misleading, for there was only one plant, as I know from seeing it many times, year after year.

In 1878 Mrs. Starbuck's daughter, Mrs. Merriam (afterwards Mrs. Spinney), brought home from a walk and showed her mother "a new flower" which the latter declared at once must be the one I had charged her to seek. She was right; the long-hidden heath was rediscovered.

The next time I went to Nantucket I was taken to see the precious plant. It was seven or eight inches high and a bushy little thing, full of flowers; its habit always was to bloom from early summer till late in the fall, and on that account it was conspicuous, but it was fortunately screened from observation by bushes growing between it and the road, and furthermore the bitter polygala, which matches the bell-heather closely in color, was abundant in the vicinity. This plant lived till about 1903, thirty-five years after Mrs. Atwater first saw it. Mrs. Stokeley Morgan, who had known it for several years before its death, tells me that she found it alive and vigorous in the late fall either of 1902 or 1903 and protected it by blocks and boughs; the next spring it was dead, perhaps killed by some heavy thing (part of the protection) which had fallen upon it, or perhaps it had lived its life. And so our fair flower went in mystery as it came. But some time before this Mrs. Morgan had found a second plant not far from the original, and after that was dead she took Judge Churchill of Dorchester to see the new one. He remarked that if the first

had ever ripened seed the prevailing wind at that place would blow it in amongst the trees; they searched at once and were rewarded by the discovery of another plant of the size and apparent age of Mrs. Morgan's first find. This was in 1903 or 1904, and till this year there was no question but they were the direct offspring of Mrs. Atwater's plant; what new testimony has come out will be told farther on. These new plants are in fine condition: I have seen them this year as well as in the two years preceding.

When we consider the eminent botanists who have gone to Nantucket from the time of Oakes and Hitchcock down to the present day and have made diligent collections without ever discovering an *Erica*, it may be confidently inferred that the first specimen could not have been there many years before 1868, but that more may be found is not impossible, for persistent efforts have been made to raise the plant by scattering seed at random and also sowing it in many places.

Mr. Sidney Starbuck told me that he once brought from Scotland two or three pounds of both purple and white heather seed and gave it to his aunt, the Mrs. Starbuck before mentioned, and that she had it sown on the commons.

Mr. John Appleton tells me that the late Mr. Kimball, a well known seedsman and florist of Rochester, N. Y., who had a summer residence on the island for many years, once carried there a bushel of heather seed, with which he supplied those who wanted it until it was nearly all gone and then gave him the remainder which he sowed. Mrs. Dahlgren who spent many summers with her family at their house on the Cliff was so bent on multiplying these additions to the island flora that she procured from a florist directions for propagating heather, and by following them on her own premises with constant care, she raised all three kinds,— the bell-heather, the cross-leaved and the *Calluna* or ling. I saw them once,— tiny little things in two-inch pots, perhaps thirty or more. She gave the plants away generously; I had two myself, but they soon died, and there may not be one living now. I should add that Mrs. Dahlgren, like others already mentioned, took unwearied pains to propagate this pretty heather out of town, with the ultimate object of naturalizing it on the island. On her drives she carried in her lap an uncovered box of seed which she scattered along the roadside, and also had her driver sow some carefully in favorable spots amongst the pines and on the commons.

Miss Lydia M. Folger tells me this year that she was with Mrs. Dahlgren once when she set out plants in just about the spots where Mrs. Morgan found the two now living. This raises the question whether these are really from wind-blown seed or are those of Mrs. Dahlgren's that have lived and flourished. The only thing apparently certain is that they are not to be classed with Mrs. Atwater's discovery. Mrs. Morris searched the vicinity in 1871, and others have done the same year after year, but all in vain till the two specimens now growing near the plant of 1868 appeared; as to the origin of that all are free to form a conjecture, or to call it a waif and there let it rest.

There is no mystery about *Erica tetralix* and *Calluna vulgaris*, found in Mr. Henry Coffin's nursery. It is only this year that I learned the true history of the trees there. I had been told before this that Mr. Coffin, owning unimproved land, exchanged some of it with Mr. George B. Emerson for an equivalent in trees; this is not quite correct, but we are not concerned now with the way Mr. Emerson acquired property in Nantucket. I have at hand a copy of a letter written in April, 1877, by Mr. Coffin to Mr. J. S. Tewksbury of Winthrop, who was Mr. Emerson's agent in the business. He reports in it the arrival of a box of young trees and says that he had at the time of writing finished planting, with the help of three or four men, the six acres of Mr. Emerson's land, and was now going to plant six acres for himself. He was to have twenty thousand two year old trees consigned to him and ten thousand one year old, but apparently they had not all reached him then. He goes on to speak of "the first three boxes which came from Europe, and they contained only 7253 trees, said to be 10,000. They were the fir trees and so were much larger."

This letter proves what had been guessed for many years,— that some, if not all, of the trees were imported stock; we know now that 7253 crossed the ocean to us, quite enough to account for the heaths that sprang up in the nursery. The *Erica* was found there in 1884 by Miss Susan Coffin and the *Calluna* in 1886 by Mr. Lawrence Coffin, but the size of the Callunas showed that they must have been there in 1884, although not distinguished by Miss Coffin and her father. Mr. Lawrence Coffin recognized this heath from his previous familiarity with its appearance. Six years before, while still a schoolboy, he had found a single specimen of *Calluna* on the open com-

mon, a plant that could have had no connection with those of the nursery from which it was miles away. This 1880 plant evidently belongs with those scattered specimens found from time to time in our country from Newfoundland to Massachusetts.

Either in 1886 or soon after, the late Mr. John H. Redfield went to Nantucket expressly to see the three heaths of which he had heard from his friend Dr. Asa Gray. After visiting those to which this paper refers, Mr. Lawrence Coffin took him to see the one which he had found so long before. Mr. Redfield wrote to me that the size of the stock and general appearance of this solitary plant indicated a very considerable age. It disappeared years ago.

As for the future of our immigrants, the two bell-heather plants seem likely to live out their natural lives and the ling (*Calluna*) may become naturalized in a few spots. In 1907 I went to see every individual plant of all three of the heaths of which Mr. John Appleton had any knowledge, and he is well informed about their localities. I found the Calluna quite widely spread. There is a fine large plant raised from a cutting, carefully cherished in a yard in the heart of the town, and Mr. Appleton has two equally large on his farm transplanted from land of his own adjoining the Coffin nursery, while in the nursery itself there may be from twelve to twenty,— I could not easily count them. A few neglected straggling specimens are still to be found amongst the grass on the Dahlgren place.

Mr. Abajian has attempted propagation and he showed me a few minute specimens in his window box; this was in 1906, but they were gone in 1907. A "cliff-dweller" took me to two beautiful plants on the face of the Cliff set out there a few years before, now large and healthy bushes;— this because I was trustworthy, so I say no more of that locality.

Next a most interesting patch far along on the Cliff. Within a space measuring twelve feet by six, there are, by actual count, about fifty vigorous little plants, some hardly above the ground, and others from that size up to three or four inches in height, some in bloom.

These are puzzlers. I might think they were from seed, but who sowed it? Dr. and Mrs. Workman own the place, but they left Nantucket for the Himalayas years ago, and their house has been closed ever since. The few who know of this interesting cluster lay it to Mrs. Dahlgren's agency,— really a probable conjecture,— her cottage was not far from Monsalvat, the Workman place — and although

she has not been on the island for five years, these little plants may be older than we think; we cannot set up as judges of the age of plants which we in this country have never had a chance of studying. It would be absurd to suppose they were natives of the soil and had shown themselves only in these late years. When I saw these pretty little things so stout and healthy amongst the grass, I felt that the Scotch ling had settled there to stay; it thrives in our climate, and in time the slope may be covered with it, at the right season all aglow with its rosy flowers.

In August of this year I heard of two *Callunas* discovered in a new locality by Dr. E. Le Roy Thomson of New Haven, Ct., and under his guidance I went to see them. They are a few feet apart on the open common, growing amongst the usual vegetation of the locality; the largest spreads from one root about three feet six inches by two feet nine, the other, nearly circular, is about three feet in diameter. Dr. Thomson first observed them in July, 1906, while on one of his frequent rides over the island and has seen them every year since; from their rate of growth, which is more rapid than that of the Coffin plants, he judges that they may be from eight to ten years old. They are miles away from any human habitation as well as from the nursery; it seems improbable that they can have sprung from wind-wafted seed of the Henry Coffin plants, but are more likely to be of the Starbuck, Kimball or Dahlgren sowing, and this will be the most plausible explanation for the appearance of any that may be discovered hereafter on the island.

In September of this year Dr. Thomson found still another *Calluna* on the open common, but far from the two just mentioned as well as from the nursery. This is a large plant, about three feet in diameter.

The cross-leaved heather, *E. tetralix*, has diminished sadly in numbers since 1887 when Miss Coffin found some twenty-five plants, more than twice as many as in 1884. It is very attractive with its head of delicate pink blossoms, and by the reckless picking of some of its admirers it is too often pulled out of the ground, so that it has been reduced in number to five individuals. This is in the locality by which the road passes, but in the ten acres or more of the Coffin and Emerson nurseries Dr. Thomson has discovered other specimens, eight measuring each from twelve to twenty inches in diameter and eleven small ones. By means of these hidden away in places difficult of access the species may keep its existence.

The sum of these investigations is this: that one plant of *Erica cinerea* which it has been impossible to trace to human agency appeared in Nantucket forty years ago and lived till 1902 or 1903; that there are two of the same species of doubtful origin now alive near the spot where the first was found; that the Lawrence Coffin *Calluna*, now dead, in all probability adds one more locality for this as a wild plant to those previously known in New England and the British provinces; that the *Calluna* of the nursery came in from Europe with the imported trees; that every other bit of it on the island goes back to that for its origin, or else has come from the Kimball, Dahlgren or Starbuck seed, and that the cross-leaved heather, *Erica tetralix*, stays under the pines and larches where it was first found.

Brooklyn, N. Y.

ADDITIONAL LISTS OF CONNECTICUT DIATOMS.

William A. Terry.

During the past year I sent to Tempère at his request some fifty different gatherings of North American diatoms. He was about to issue the second edition of the "Diatomeés du monde entier" [1] and I was pleased at the opportunity of bringing these collections to the notice of the scientific world, especially as many of them contained new species that I had discovered. Among these gatherings was one from "Doer's Mountain Grove" Ice pond, on a small mountain brook near New Britain reservoir. This was notable as containing abundance of *Surirella Terryi* Ward. This *Surirella* was the principal form in Spring's Pond, a small pond on the north bank of the Pequaback River in Bristol, and with it were numbers of the small *S. ovalis* var. *angusta* (Kütz.) V. H. A quarter mile down the river just east of Saw Shop is a pond hole on the Lee property formed by cutting off a bend of the river when the highway was moved to accommodate the railroad; this is also rich in *S. Terryi*. Below this

[1] Diatomées du monde entier. Collection Tempère et Peragallo. Deuxième Édition. 1907–1908.

is Downs' Pond, a large part of which is a cove setting back from the river, in which the mud is three or four feet deep, all very rich in diatoms, including abundance of the species in question, which is abundant also in Thompson's Pond, on the headwaters of a small brook flowing into Downs' Pond, and Allen's Pond in Stafford district, near the northeast corner of Bristol, on the headwaters of a small stream, and Beattie's Pond, at Leete's Island. At this last station are also other rare species, including *Navicula peripunctata* Brun, *Pleurosigma simile* Grun., and the very rare *P. subsalinum* Per. Outside these ponds above noted I have never found more than an occasional specimen of *S. Terryi* in all the hundreds of gatherings by myself and others from streams, ponds, lakes and rivers all over the country. Of the seven ponds in which this species is found, four are on the headwaters of streams many miles apart, but all in Connecticut, while the others are on the Pequaback River.

The following lists from the third and fourth fascicles of the Diatomées du monde entier are from my material and are interesting as being the latest and most authoritative determinations; many species here given were not in my list[1] and some of them have never before been credited to North America. In spelling, abbreviations and italics, the original is followed; the explanation as there given is — "Nota. Le nom des espèces prédominantes sont imprimés en caractère gras; les rares en italique et les autres en caractère courant."

The Fall Mountain gathering was from a small brook flowing from a mountain spring; Bunnell's Pond is the highest in a series of ponds on a stream flowing from South Mountain reservoir.

No. 78. Ice Pond, New Britain, (Connecticut, U. S. A.).

Achnanthes coarctata Grun.
Amphora libyca Ehr.
ovalis Ktz.
pediculus Ehr.
Cymbella amphicephala Naeg.
Ehrenbergii Ktz.
gastroides Ktz.
naviculaeformis Auers.
Encyonema lunatum Grun.
Epithemia argus v. amphicephala Grun.
gibba Ktz.
v. ventricosa Ktz.
zebra v. proboscida Grun.
Eunotia *diodon Eh. fa. minor.*
impressa Grun.

[1] Rhodora, Vol. IX, p. 125.

Eunotia lunaris Grun.
major Rab.
v. *ventricosa* Cl.
monodon Eh.
pectinalis Rab.
v. ventricosa Grun.
praerupta v. bidens Grun.
ternaria Eh.
Fragilaria *virescens Ralfs.*
Gomphonema acuminatum Eh.
dichotomum W. Sm.
intricatum Ktz.
montanum Shum.
montanum v. suecica Grun.
Hantzschia amphioxys Grun.
elongata Grun.
Meridion *constrictum Ralfs.*
Navicula acrosphaeria Bréb.
affinis Ktz.
amphirynchus Eh.
bicapitata v. hybrida Grun.
Braunii Grun.
v. interrupta.
Brebissonii Ktz.
cryptocephala Ktz.
cuspidata Ktz.
dubia Greg.
gigas Ehr.
iridis Eh.
limosa Ktz.
v. subundulata.
major Ktz.
Navicula mesogongyla v. interrupta Cl.
mesolepta v. stauroneiformis Gr.
mesotyla Eh. var.
nobilis Ktz.
nodosa v. curta Rab.
pupula v. lineare v. n. avec la striation de N. pupula et la forme bacillaire à extrémités arrondies M. P.
trinodis Lewis.
var.
viridis Ktz.
v. commutata Grun.
Nitzschia sigmoidea W. Sm.
Stauroneis anceps Eh.
v. linearis Eh.
gracilis Eh.
legumen Ktz. La forme représentée dans V. H. Syn. 4/11 n'en est qu'une variété très étroite.
Surirella saxonica Auersw.
splendida Eh.
tenera v. splendidula A.S.
Terryi Ward n. sp.
Synedra *capitata Eh.*
ulna Eh.
Van Heurckia rhomboides v. amphipleuroides Grun.

Nos. 103, 104. Fall Mountain, Bristol, Connecticut no. 1 (Etats-Unis).

(Sources et ruisseaux à 800 pieds d'altitude).

Achnanthes lanceolata Bréb.
v. Haynaldii?
Cymbella gastroides Ktz.
Diatoma anceps v. capitata M. Per. à extrémités resserrées et fortement capitées.

Diatoma anceps v. linearis M. Per. trés étroite, lineare à extrémités atténuées.
hyemale fa curta. var.mesodon Grun.
Encyonema ventricosum Grun.
Eunotia *arcus Eh. v. minor V. H. v. tenella* Grun.
minor Rab.
pectinalis v. stricta Rab.
Fragilaria *aequalis v. producta* Lag.
Gomphonema angustatum Ktz.
angustatum v. elongata M. Per. plus long que le type, biconique à extrémités à peine un peu produites. Longueur 60 μ.
angustatum v. producta P. P.
dichotomum W. Sm.
micropus Ktz.
tenellum Ktz.
Hantzschia amphioxys Grun. fa major Grun.
vivax v. granulata M. Per. très grand, porte à une certaine distance de la caréne une ligne de points analogues aux points carénaux. Longueur 250 μ. 13 stries en 10 μ.
Meridion constrictum fa elongata, très long et étroit.
constrictum v. Zinkenii Grun.
Navicula acrosphaeria v. minor M. Per. et F. H.
appendiculata Ktz.
Navicula bisulcata Lag.
Bogotensis v. ininterrupta M. P. à striation non interrompue au milieu de la valve.
Bogotensis v. undulata M. Per. diffère de A. S. 44/30 par les bords triondulés.
Cari Eh. v. angusta Grun.
decurrens Eh.
dicephala Eh.
dicephala v. lata M. Per. largement elliptique, rostrée, capitée et striation du *Nav. dicephala*.
divergens W. Sm.
elegantissima M. Per. Petite, largement elliptique à extrémités rostrées, capitées; structure formée de granules fines disposées en élégantes lignes courtes décussées comme chez les Orthoneis.
elliptica Ktz.
fasciata Lag.
gibba Ktz.
hemiptera Ktz.
heroina A. S.
major Ktz.
parva Eh.
Smithii v. dilatata M. Per. fortement dilatée, presque circulaire; aire centrale développée, côtes fines et isolées, peu distinctement granulées.
stomatophora Grun.
subcapitata v. stauroneiformis.

Navicula viridis Ktz.
v. commutata Grun.
v. fallax Cl.
Pleurosigma *attenuatum W. Sm.*
Stauroneis anceps Eh.
v. linearis.
anceps v. capitata M. Per. Semblable à la variété amphicephala mais plus petit, à bords droits et à extrémités [relativement plus larges et plus capitées. Long 22 μ largeur 7 μ.
Synedra ulna Eh.
v. vitraea V. H.
Tabellaria fenestrata Ktz.
flocculosa Ktz.
v. ventricosa Grun.
Van Heurckia vulgaris Thw.

No. 105, 106. Bunnel's Pond, Bristol, Connecticut (Etats-Unis) (Dépôt fossile d'eau douce).

Amphora Lybica Eh.
pediculus Grun.
Cocconeis placentula Eh.
v. lineata V. H.
Cymbella cuspitata Ktz.
Ehrenbergii v. minor V. H.
gastroides Ktz.
heteropleura Ktz.
producta M. Per. De forme élliptique, à extrémités productes, semblable à celle figurée dans A. S. atlas 9/52 mais plus grande à aire centrale plus développée et stries distinctement divisées en travers. Long 74 μ; 7 stries dorsales, 8, 5 ventrales en 10 μ.
Encyonema ventricosum Ktz.
Epithemia *turgida Ktz.*
Zebra Ktz.
Eunotia arcus Eh.
v. plicata J. B. et F. H.
diodon Eh.
fa. minor Grun.
formica Eh.
Eunotia *gracilis v. nodosa?* les extrémités sont rondes, différentes de celles de *E. formica.*
incisa Greg.
lunaris Grun.
monodon Eh.
pectinalis v. ventricosa Grun.
praerupta Eh.
robusta v. tetraodon V. H.
Fragilaria Harrissonii Grun.
virescens Ralfs.
Gomphonema acuminatum Eh.
angustatum Ktz.
augur Eh.
commutatum Grun.
constrictum v. capitata Eh.
constrictum v. subcapitata Eh.
Herculaneum Eh.
micropus Ktz.
Mastogloia **Smithii** *Thw. var.*
Meridion constrictum Ralfs.
Navicula acrosphaeria Ktz.
acrosphaeria var. dilatata M. Per. à centre très

fortement dilaté en forme de cercle et à extrémités capitées.
affinis v. amphirynchus Eh.
Navicula affinis fa. maxima.
americana v. bacillaris M. P. et F. H.
amphigomphus Eh.
bisulcata Lag.
Bogotensis Grun. var.
brevicostata Eh.
commutata Grun.
dactylus fa. curta Ktz.
Dariana A. S.
divergens W. Sm.
divergens v. bacillaris M. Per. tout à fait bacillaire à extrémités exactement hémicirculaires.
divergens v. constricta M. Per. à partie ventrale resserrée et à extrémités atténuées arrondies.
elegantissima M. Per.
fasciata Lag.
gentilis Donk.
gibba Eh.
Hitchcockii Eh.
iridis Eh.
legumen Eh.
limosa Ktz.
linearis Greg.
major Ktz.
mesolepta v. stauroneiformis Grun.
mesolityla Ktz.
nobilis Eh.
rhyncocephala Ktz.
rupestris Hantz.
transversa A. S.
viridis Ktz.

Bristol, Connecticut.

Navicula sp. A. S. atlas 44/44.
sp. A. S. atlas 49/40. (N. producta v. acuta.)
Nitzschia spectabilis Ralfs.
Stauroneis acuta W. Sm.
v. gracilis Eh.
gracilis Eh.
lanceolata Ktz.
Phoenicenteron Eh.
Pteroidea Eh.
Stephanodiscus astraea Grun.
Surirella **Guatemalensis** Eh. = Sm.
Cardinalis Kitt.
Kittoni? A. S. v. elliptica.
linearis W. Sm.
v. constricta Grun.
pseudo cruciata M. Per., de structure tout à fait semblable à celle de A. S. 56/15, 16 mais ne présentant pas le renforcement de la partie centrale.
splendida Eh.
tenera Greg.
v. nervosa A. S.
v. splendidula A. S.
valida A. S.
Synedra splendens Ktz.
ulna Eh.
v. lanceolata fa brevis Grun.
v. undulata Greg.
Tabellaria fenestrata Ktz.
flocculosa Ktz.
flocculosa v. ventricosa Grun.
Van Heurckia rhomboides Bréb.
rhomboides v. amphipleuroides Grun.
vulgaris Thw.

NOTES ON NEW ENGLAND HEPATICAE, — VI.

Alexander W. Evans.

During the past year several important additions have been made to the hepatic flora of New England, more especially to the local floras of Maine, New Hampshire, and Connecticut. These additions are recorded in the present paper, although a number of them have already been noted in earlier publications.[1] The synonymy of six other New England species is also briefly discussed.

1. Metzgeria pubescens (Schrank) Raddi, Mem. Soc. Ital. delle Sci. in Modena **18**: 46. 1818. *Jungermannia pubescens* Schrank, Prim. Fl. Salisb. 231. 1792. *J. tomentosa* Hoffm. Deutschlands Flora **2**: 91. 1795. *Echinomitrium pubescens* Hüben. Hepat. Germ. 48. 1834. On bark of yellow birch, near base of tree. Franconia Notch, New Hampshire (*Miss Haynes*). The species is most frequently found on limestone rocks. It has a wide distribution in Europe and Asia and is not uncommon along the Pacific Coast of North America from Alaska to Washington. It has also been reported from eastern North America, but the records are indefinite and the specimens upon which they are based seem to have disappeared. The plants collected by Miss Haynes are fragmentary and mixed with *M. conjugata*, but there seems to be no doubt as to the correctness of the determination. *M. pubescens* is at once distinguished from our other species by the fact that the upper or antical surface of the thallus is densely covered with hairs, which give it a velvety appearance. In well-developed plants the midrib is bounded both above and below by from eight to ten rows of cells, although the number is frequently less on slender branches. There is also but little difference in size between these cortical cells and those which form the interior of the midrib. In *M. conjugata* and the other species known from the United States the upper surface of the thallus is smooth, and the midrib is bounded above by only two rows of cells and below by from two to four rows. There is also a sharp distinction in size between the large cortical cells and those in the interior of the midrib. *M. pubescens* is further distinguished by its pinnate rather than dichotomous

[1] Collins: Some Mosses from Aroostook County, Maine. Rhodora **10**: 37, 38. 1908. Evans & Nichols: The Bryophytes of Connecticut. Conn. Geol. and Nat. Hist. Survey **11**: 1-203. 1908. Miss Lorenz: Jungermannia in New Hampshire. Torreya **8**: 55, 56. 1908.

branching, a peculiarity which is not always evident on poorly developed material.

2. **Marsupella robusta** (DeNot.) comb. nov. *Jungermannia emarginata*, var. *aquatica* Lindenb. 1829. *Sarcoscyphus Ehrharti*, var. *aquaticus* Nees, 1833. *S. Ehrharti*, var. *robustus* DeNot. 1861. *Nardia robusta* Lindb.; Carrington, Brit. Hep. 16. 1874 (incidental mention). *N. robusta* Trevis. 1877. *S. aquaticus* Breidl. 1894. *Marsupella aquatica* Schiffn. 1896.[1] The strict application of either the Vienna Rules or the American Association Code of Nomenclature necessitates the above change. Although Lindenberg's variety *aquatica* is so much older than the variety *robustus* of DeNotaris, it was under the latter name that the species was first adequately published by Trevisan. As the synonymy shows the name *Nardia robusta* had already been used for the present species by Lindberg,[2] but he apparently never published it and we know it only from the incidental mention in Carrington's work. *Marsupella robusta* is still known in New England from Maine and New Hampshire only.

3. Nardia crenuliformis (Aust.) Lindb. Acta Soc. Sci. Fenn. **10**: 530. 1875. *Jungermannia crenuliformis* Aust. Bull. Torrey Club **3**: 10. 1872. *Solenostoma crenuliforme* Steph. Bull. de l'Herb. Boissier II. **1**: 494. 1901. On rocks along a stream. Beacon Falls, Connecticut (*A. W. E.*). New to New England. The species is apparently confined to the eastern United States, but its range is very indefinitely known, the only stations recorded being the following: Closter, New Jersey (*Austin*); Coschocton County, Ohio (*Sullivant*); Tibb's Run, West Virginia (*Andrews*). Even at the time of its original publication Austin recognized its relationship to *N. crenulata*, and Lindberg considered the relationship so close that he was almost ready to deny it specific rank. Austin,[3] however, insisted that it was distinct, and it has recently been recognized as a clearly defined species by both Underwood and Stephani. The most striking peculiarity which the two species possess in common is the border of enlarged and thick-walled cells, which usually forms a conspicuous feature of the leaves and bracts. This border is even more constant in *N. crenuliformis* than in *N. crenulata*, in slender forms of which

[1] For fuller references and additional synonyms see the writer's notes on *M. aquatica* in Rhodora **6**: 167. 1904.

[2] See Schiffner, Lotos **44**: 267. 1901.

[3] Bull. Torrey Club **6**: 85. 1876.

it is often restricted to the uppermost bracts. Even in the borders, however, certain differences are to be observed. In *N. crenulata* the marginal cells lie in the plane of the leaf and are considerably larger than the cells just within; in *N. crenuliformis* they lie in a different plane and form an elevated ridge around the leaf, but the contrast in size is less marked. The remaining leaf-cells also show differential characters: in *N. crenulata* they average about 35 μ in the middle of the leaf, and their walls are either thin throughout or show minute trigones; in *N. crenuliformis* the median cells average about 25 μ and show distinct trigones. *N. crenuliformis* is further distinguished by its place of growth (*N. crenulata* preferring sandy banks and roadsides), by its numerous flagella, and by its reddish rhizoids. The last peculiarity indicates an approach to *N. hyalina* and *N. obovata*, both of which show a uniform cell-structure in their leaves.

4. Lophozia attenuata (Mart.) Dumort. Recueil d'Obs. sur les Jung. 17. 1835. *Jungermannia gracilis* Schleich. Pl. Crypt. Exsic. Helvet. **3**: *60.* 1804 (*nomen nudum*); Lindberg, Musc. Scand. 7. 1879. *J. quinquedentata δ attenuata* Mart. Fl. Crypt. Erlangensis 177. *pl. 6, f. 50c.* 1817. *J. attenuata* Lindenb. Nova Acta Caes. Leop.-Carol. **14**, suppl.: 48. 1829. *J. quinquedentata β gracilis* Hüben. Hepat. Germ. 203. 1834. *J. barbata*, var. *attenuata* Nees, Naturgeschichte der europ. Leberm. **2**: 163. 1836. *Lophozia gracilis* Steph. Bull. de l'Herb. Boissier II. **2**: 47. 1902. *Barbilophozia attenuata* Loeske, Verhandl. Bot. Ver. Prov. Brandenburg **49**: 37. 1907. According to the prevailing codes of nomenclature *Jungermannia gracilis* of Schleicher was not adequately published by its author. The name first appeared in a set of exsiccatae of Swiss cryptogams, issued early in the last century. The specimens were distributed with printed labels, but no diagnoses accompanied the species which Schleicher considered undescribed. The names of these new species are therefore to be regarded as *nomina nuda*, unless subsequent authors have republished them either with descriptions or with the citation of synonyms. In the case of *J. alpestris* Schleich. this was soon done by Friedrich Weber,[1] so that this name is now universally recognized. In the case of *J. gracilis*, however, adequate publication was delayed for many years, although

[1] Hist. Musc. Hepat. Prodr. 80. 1815.

the name was quoted from time to time in synonymy. Meanwhile the species which Schleicher called *J. gracilis* was published as new by Lindenberg under the name *J. attenuata*, and it is by this specific name that it ought now to be designated. *L. attenuata* is known in New England from Maine, New Hampshire, Vermont, and Connecticut, and ought surely to be expected in Massachusetts.

5. Lophozia Baueriana Schiffn. Lotos **51**: (9). 1903. *Jungermannia barbata*, var. *pusilla* Schiffn.; Schiffner & Schmidt, Lotos **35**: 25. 1886. *Lophozia Floerkii*, var. *Baueriana* Schiffn. Oesterr. Bot. Zeitschr. **50**: 274. 1900. *J. Floerkii*, var. *aculeata* Loeske, Moosfl. des Harzes 86. 1903. On wet rocks. Little Saddleback Mountain, Franklin County, Maine (*Chamberlain & Knowlton*). New to New England but recently recorded from arctic America (Greenland, Ellesmere Land, and North Lincoln) by Bryhn.[1] *L. Baueriana* was proposed by Schiffner to include plants which were formerly considered connecting links between *L. Floerkii* and *L. lycopodioides*. Although so recently published it has already received wide acceptance in Europe, where it has an extensive distribution. It agrees with its nearest allies in having distinct underleaves and in developing a cluster of teeth or cilia near the postical base of each leaf. It differs from *L. Floerkii* in the fact that its leaves usually have four lobes instead of three, some of the lobes at least being tipped with bristle-like teeth, instead of being uniformly blunt. These peculiarities it shares with *L. lycopodioides*, but the latter species is distinguished by its larger size and by its crispate leaves commonly broader than long. *L. Baueriana* is further characterized by producing an abundance of gemmae, these bodies being very rare in most species of the *barbata*-group. Another very close relative is *L. Hatcheri* (Evans) Steph.,[2] of antarctic regions, a species which also reproduces itself largely by means of gemmae. According to Loeske the two species are probably synonymous, and he unites them under the name *Barbilophozia Hatcheri* Loeske.[3] In view, however, of their wide geographical separation it seems quite justifiable to keep them apart until their ranges of variability are better known, more especially since no species of the *barbata*-group are known from intermediate regions. For fur-

[1] Rep. Second Norwegian Arctic Exped. in the "Fram" **11**: 37. 1906.
[2] Bull. de l'Herb. Boissier II. **2**: 159. 1902. *Jungermannia Hatcheri* Evans, Bull. Torrey Club **25**: 417. *pl. 346, f. 1–7.* 1898
[3] Verhandl. Bot. Ver. Prov. Brandenburg **49**: 37. 1907.

ther information about *L. Baueriana* the following references may be consulted: Arnell, Bot. Notiser 1906: 145–157. Arnell & Jensen, Naturw. Unters. des Sarekgebirges in Schwedisch-Lappland **3**: 109. 1907. Macvicar, Jour. Bot. **45**: 258. 1907.

6. Lophozia longiflora (Nees) Schiffn. Lotos **51**: (45). 1903. *Jungermannia longiflora* Nees, Naturgeschichte der europ. Leberm. **2**: 95. 1836. *L. ventricosa*, var. *longiflora* Macoun, Cat. Canadian Pl. **7**: 17. 1902. In tufts of *Sphagnum*, near Schoodic Lake, Maine (*A. W. E.*). New to New England. Probably widely distributed in North America but easily confused with other species of the *ventricosa*-group. Until revived by Schiffner the species had long been ignored or forgotten by the majority of European writers. *L. longiflora* is closely related to *L. porphyroleuca* and perhaps represents a swamp or bog variety of that species, although Schiffner states that he has never seen connecting forms. When compared with typical *L. porphyroleuca*, which grows on rotten logs, *L. longiflora* is seen to be about three times as large, the difference in size being especially apparent in the perianth. As a rule the leaf-cells have smaller trigones, and their walls are sometimes scarcely thickened at all. The mouth of the perianth is not lobed as in *L. porphyroleuca* but simply minutely and irregularly toothed, very much as in *L. ventricosa*. Unfortunately the Maine specimens are destitute of perianths but agree in all other respects with those distributed by Schiffner (Hep. Europaeae Exsic. *138, 139*).

7. **Cephaloziella Sullivantii** (Aust.) comb. nov. *Jungermannia Sullivantii* Aust. Proc. Acad. Philadelphia for 1869: 221. *Cephalozia Sullivantii* Aust. Hep. Bor.-Amer. *50*. 1873. The genus *Cephaloziella* was first proposed by Spruce[1] as a subgenus under *Cephalozia* and afterwards raised to generic rank by Schiffner.[2] It is not universally accepted, even in Europe, and yet the species which belong to it form a group which can be easily distinguished. They are considerably smaller than in *Cephalozia* (subgenus *Eucephalozia* Spruce), their leaf-cells also are smaller, and their female flowers are usually borne on leading branches rather than on short postical branches. The cell-structure of the stems and branches is also characterized by being uniform, while in *Cephalozia* a cortical layer of enlarged cells is usually differentiated. The perianth in *Cephaloziella*, finally,

[1] On Cephalozia 62. 1882.
[2] Engler & Prantl, Nat. Pflanzenfam. **1**[3]: 98. 1895.

commonly bears several supplementary keels in addition to the three keels characteristic of the Trigonantheae as a whole. These peculiarities afford an excellent combination of generic characters, although it must be admitted that some of them are not invariably constant. In addition to the species noted above, *Cephaloziella divaricata* (Sm.) Schiffn. and *C. myriantha* (Lindb.) Schiffn. are also known from New England.[1] It is also probable that the number of species would be still further increased if the material on hand were thoroughly revised.

8. Bazzania tricrenata (Wahl.) Trevis. Mem. R. Ist. Lomb. III. **4**: 415. 1877. *Jungermannia triangularis* Schleich. Pl. Crypt. Exsic. Helvet. **2**: *61*. 1803 (*nomen nudum*). *J. tricrenata* Wahl. Fl. Carpat. 364. 1814. *J. deflexa* Mart. Fl. Crypt. Erlangensis 135. *pl. 3, f. 8*. 1817. *Pleuroschisma tricrenatum* Dumort. Syll. Jung. 70. 1831. *P. deflexum* Dumort. l. c. 71. *Herpetium deflexum* Nees, Naturgeschichte der europ. Leberm. **3**: 59. 1836. *Mastigobryum denudatum* Torrey; G. L. & N. Syn. Hep. 216. 1845. *M. ambiguum* Lindenb. l. c. 217. *M. deflexum* Nees, l. c. 231. *Bazzania triangularis* Lindb. Acta Soc. Sci. Fenn. **10**: 499. 1875. *B. deflexa* Underw. Bull. Ill. State Lab. Nat. Hist. **2**: 83. 1884. The same reasoning which applies to *Lophozia attenuata* applies to *Bazzania tricrenata* as well. Schleicher's *Jungermannia triangularis*, inadequately published as a *nomen nudum*, ought to be superseded by the adequately published *J. tricrenata* of Wahlenberg. The synonymy of the species is exceedingly complicated, and only the more important of its many names are indicated above. It is usually abundant in mountainous and northern regions and is known in New England from New Hampshire, Vermont, Massachusetts, and Connecticut. Strangely enough it has not yet been reported from Maine.

9. Leucolejeunea clypeata (Schwein.) Evans, Torreya **7**: 227. 1908. *Jungermannia clypeata* Schwein. 1821. *Lejeunea clypeata* Sulliv. 1848. *Archilejeunea clypeata* Schiffn. 1895. This species is known from Massachusetts and from numerous localities in Connecticut. It should also be looked for in Vermont, since it has already been found on the eastern shore of Lake George, New York.

10. Leucolejeunea unciloba (Lindenb.) Evans, Torreya **7**: 228. 1908. *Lejeunea unciloba* Lindenb. 1845. *Archilejeunea unciloba* Steph. 1895. *A. Sellowiana* Steph. 1895. The only known

[1] See Evans, Rhodora **7**: 55. 1905.

New England station for this species is Quidquisset, Rhode Island (*Bennett*). It probably reaches its northern limit in southern New England, but its range extends southward into Brazil. The reasons for separating this and the preceding species from *Archilejeunea* are fully stated by the writer in Torreya **7**: 225–229. 1908. The same paper also calls attention to the fact that *Archilejeunea Sellowiana* Steph. must be considered a synonym of *Lejeunea unciloba* Lindenb. For descriptions and figures of *L. clypeata* and *L. unciloba*, see Evans, Mem. Torrey Club **8**: 122–128. *pl. 16*. 1902.

11. Frullania Selwyniana Pears. List of Canadian Hepat. 1. *pl. 1*. 1890. Evans, Trans. Conn. Acad. **10**: 29. *pl. 13, f. 10–17*. 1897. *Frullania Sullivantiae* Aust. Bull. Torrey Club **3**: 16. 1872 (not *F. Sullivantii* Aust. 1869). On bark of *Thuja occidentalis*. Shores of Schoodic Lake, Piscataquis Co., Maine (*A. W. E.*). New to New England. The type specimens were collected by Macoun near the mouth of Ste. Anne des Monts River, Gaspé County, Quebec. The species is also known from several localities in Ohio, Austin's specimens of *F. Sullivantiae* having been collected near Urbana. *F. Selwyniana* looks at first sight like a small form of *F. Asagrayana*, resembling it in color and in glossiness. It also agrees in having blunt leaves, each marked by a median row of ocelli or discolored cells. It may be at once distinguished, however, by its autoicous inflorescence and by the fact that the female flower terminates the main stem or a leading branch instead of being borne on a short and simple branch. The coarsely dentate perichaetial bracts are also a striking feature.

12. Anthoceros Macounii M. A. Howe, Bull. Torrey Club **25**: 19. *pl. 326, f. 1–9*. 1898. Along a roadside. Mechanics Falls, Androscoggin County, Maine (*J. A. Allen*). This interesting species was based on specimens collected by Macoun at the outlet of Leamy's Lake, near Hull, Quebec, and distributed in Canadian Hepaticae *81*, as *A. punctatus*. It has since been found near Winona, Minnesota, by Holzinger[1] and is now known therefore from three widely separated localities. It agrees with *A. punctatus* in its dark-colored spores but differs, as Howe clearly shows, in its shorter capsules, in its muriculate spores, the roughness extending over both the inner and the outer surfaces, and in its scanty or abortive sterile cells or pseudo-elaters. In *A. punctatus* the spores are echinulate or

[1] Bryologist **10**: 13. 1907.

setose-papillate on the outer surface, while the inner surfaces are simply foveolate-areolate, and the pseudo-elaters are much better developed.

Aside from the species already mentioned in the preceding pages, the following additions may be recorded:—

For Maine. *Riccardia pinguis;* Crystal, Aroostook County (*M. L. Fernald*). *Calypogeia tenuis* and *Jungermannia pumila*; vicinity of Schoodic Lake, Piscataquis Co. (*A. W. E.*). *Lophocolea minor*; Fort Fairfield (*E. B. Chamberlain & J. F. Collins*). *Lophozia bicrenata* and *Marsupella ustulata*; Mount Katahdin (*A. W. E.*). *Porella pinnata* and *Sphenolobus Hellerianus*; vicinity of Schoodic Lake (*A. W. E.*). *Anthoceros punctatus*; Kittery Point (*R. Thaxter*).

For New Hampshire. *Ricciella fluitans*; Sanbornton (*Mrs. Carter*). *R. Sullivantii*; Dalton (*A. S. Pease*). *Calypogeia suecica, C. tenuis, Cephalozia serriflora,* and *Cephaloziella myriatha*; Franconia Mountains.[1] *Jungermannia cordifolia*; Waterville (*Miss Lorenz*). *Lepidozia setacea* and *Lophozia marchica*; Franconia Mountains.[1] *Nardia hyalina*; Waterville (*Miss Lorenz*).

For Massachusetts. *Jubula pennsylvanica*; Melrose (*C. C. Kingman*).

For Rhode Island. *Ptilidium pulcherrimum*; Providence (*J. F. Collins*).

For Connecticut. *Cephaloziella myriantha*; East Granby and West Hartford (*Miss Lorenz*). *Scapania curta*; Meriden (*Miss Lorenz*). *S. dentata*; Burlington (*G. E. Nichols*). *Lophozia ventricosa*; Salisbury (*Miss Lorenz*).

The Maine records for *Pellia epiphylla, Cephalozia pleniceps, C. serriflora, Lepidozia setacea, Lophozia marchica,* and *Scapania irrigua* may now be definitely marked with the sign "+", although most of them are marked in the writer's Preliminary List with the sign "—". The same is true of the New Hampshire record for *Cephalozia pleniceps* and the Rhode Island record for *Lunularia cruciata.* Unfortunately the Rhode Island record for *Frullania Tamarisci* must be erased, since, as Professor Collins notes, it is based on specimens collected at Blackstone, Massachusetts, just across the Rhode Island line. The Massachusetts record for this rare species may therefore be marked with the sign "+".

[1] Collected by a committee of the Sullivant Moss Chapter, consisting of Miss Haynes, Miss Lorenz, Miss Robinson, and the writer. A full report on the collections, by Miss Lorenz, will appear in the Bryologist for November, 1908.

The census of New England Hepaticae now stands as follows: Total number of species recorded, 147; number recorded from Maine, 101; from New Hampshire, 116; from Vermont, 84; from Massachusetts, 82; from Rhode Island, 64; from Connecticut, 107; common to all six states, 43.

Yale University.

GRAY'S MANUAL OF BOTANY, SEVENTH EDITION.[1]

Karl M. Wiegand.

Perhaps it is not too much to say that no work has been awaited with so much interest by botanists as the new edition of Dr. Gray's famous text-book, which is now before us. It has been a long time since the last edition appeared in 1890, and in this age when progress in scientific fields is so rapid it was inevitable that the work should gradually fall behind the times. A new edition brought completely up to date has long been promised us until to the uninitiated it has seemed like a truly elusive will-o-the-wisp. The delay, however, was due solely to the very great amount of labor and time required for a complete revision and verification of the enormous mass of facts contained in the work. For nearly ten years the editors have been engaged at their task, and it is safe to say that the Manual has never before received a more critical revision.

To the botanist who has not followed recent progress in his science, and who is familiar only with the Gray's Manual of the past, this new edition will appear strange indeed. The most striking change lies undoubtedly in the substitution of the newer Eichler or Engler and Prantl system of classification, now so generally adopted everywhere, for the somewhat antiquated Benthamian system previously used. We now find the *Compositae* at the end of the book and the grasses near the beginning. The older botanist will also find unfamiliar the numerous text illustrations inserted on many pages of the work. These illustrations are small in size and are intended to illustrate not the whole plant but certain characters that are difficult to

[1] Gray's New Manual of Botany, 7th ed. Illustrated.— Rearranged and extensively revised by Prof. B. L. Robinson and Prof. M. L. Fernald of the Gray Herbarium (Harvard Univ.)— American Book Co. 1908, pp. 926.

make clear verbally. They seem carefully done and will undoubtedly prove very useful. A third innovation lies in the adoption of the Vienna code of nomenclature throughout the work. This has necessitated a change in many familiar names, but in fewer than would have been the case had a more radical system been adopted. We also find evidence throughout the work of painstaking investigation into the types of the older authors, resulting frequently in the discovery of long-followed error in interpretation. Rectification of such error has also resulted necessarily in some change of names.

The older botanist will also find much evidence of the great activity in taxonomic botany of recent years. Many species are added; others are broken up; while some are united, in accord with recent revision of the various groups. In this however the authors have maintained a conservative attitude, critically reviewing all new propositions, omitting species of doubtful status, and treating as varieties all those forms that freely intergrade. The policy has also been,—when in doubt, leave it as it was.

We note also the introduction of many specific keys under difficult genera. To the reviewer this seems a very commendable feature, but one that might well have been introduced much more freely. The genus *Aster* and the genus *Solidago* show very strikingly this contrast in treatment. Another new feature, also a good one, is the addition of synonymy under each species. This will be especially appreciated by the amateur botanist who has not time to follow all the changes in nomenclature.

The liverworts have been omitted from this edition, but the ferns and their allies are still retained. The plates that were found at the back of the book are also omitted, most of their figures having been redrawn and more conveniently distributed in the text. At the beginning of the book the synopsis of families has been much reduced, and the analytical key has been made to occupy a more prominent place.

Notwithstanding these many innovations the book is still recognizable as a Gray's Manual. Throughout the work the well known "manual" practice of italicising the distinguishing characters has been followed in family, generic, and specific descriptions. Following the family characterization of the larger families we also find the familiar synopsis divided into tribes with the subdivisions marked with the asterisk and the dagger, and we also find the interpolation in the

genus of the familiar text synopsis. In the use of the various kinds of type too an attempt has been made to follow the plan of the previous editions.

The conservative attitude of the authors is also evidenced by the retaining of the old limits in family and genus as opposed to the practice of segregation. The *Compositae*, *Rosaceae*, and *Leguminosae* still retain their old limits; as also do *Pyrus*, *Potentilla*, *Oenothera*, and *Habenaria*.

The familiar glossary is found at the end of the book, and also a specially prepared index. This index includes family, generic, specific, and popular names, as well as synonyms, all in one, and is a specially commendable feature of the work.

The authors have been assisted in the revision by specialists in certain groups. The *Gramineae* have been revised by Prof. A. S. Hitchcock; the *Orchidaceae* by Mr. Oakes Ames; the Genus *Viola* by Pres. Ezra Brainerd; *Equisetum* and *Isoetes* by Mr. A. A. Eaton; *Senecio* by Dr. J. M. Greenman; and *Crataegus* by Mr. W. W. Eggleston.

The area covered by the Manual has been somewhat changed. The range of this edition is from the Atlantic Seaboard to the western boundary of Minnesota and Iowa and south along the 96th meridian; and from the 48th parallel at the east, and the international boundary at the west, southward to the southern boundary of Kansas, Missouri, Kentucky, and Virginia.

The following statistics are interesting,—

6th Ed.	Genera		Species	
	Native	Introd.	Native	Introd.
Monocots.	170	22	721	64
Dicots.	581	106	1908	380
Total	751	128	2629	444
7th Ed.				
Monocots.	184	26	993	92
Dicots.	596	154	2280	571
Total	780	180	3273	663

The press work is of high class and is a credit to the publishers. Especially is this true when the task of condensing 926 pages into a book of convenient size is considered. A leather-covered pocket edition is in press.

As a whole the work is fully up to the standard of Gray's Manuals,

and is a distinct credit to the already well known reputation of the editors.

It is learned from the publishers that the exact date of issue was 18 September, 1908.

Wellesley, Massachusetts.

New Stations for Ferns in Vermont.— The writer had the good fortune to find within a mile from this city in June a swamp containing several hundred plants of *Woodwardia Virginica* (L.) Sm., thus establishing a third station in Vermont for this interesting fern, the others being Fort Ethan Allen pond, near Burlington, and a bog in Franklin. The circumstances under which the *Woodwardia* was growing here are rather interesting. The bog is of the typical sphagnum type, situated between two ledges, at perhaps 700 feet elevation. The hill on which it is found shelters a large pond bordered by a sphagnum bog, evidently a typical place for *Woodwardia*, yet not a plant of the fern is to be found there although it is only a few hundred feet from the new station. Another interesting fern to be found in the Woodwardia bog and one which I have never before seen in Vermont is *Osmunda cinnamomea* var. *incisa*. About half of a large number of plants of this *Osmunda* growing in the bog show well incised pinnae. The effect of these cut pinnae on the general appearance of the frond is very pretty. None of the incised form of *O. cinnamomea* grows in the other bogs on the hill. A number of botanists to whom I have showed the incised form of cinnamon fern expressed the belief that it would not reproduce true to parent but the finding of so many plants of the fern in the bog looks as though it were something more than a freak.— George L. Kirk, Rutland, Vermont.

To collectors and those who possess herbaria within the region covered by Gray's Manual it will be of interest to learn that a Check List of the new (7th) edition has been prepared by Miss Mary A. Day, Librarian of the Gray Herbarium, Cambridge, Massachusetts. It is of pocket size and will be found convenient alike for field notes and exchange records.

Vol. 10, no. 117, including pages 149 to 172 was issued 30 September, 1908.